

ABSTRACT OF THE DISCLOSURE

A reactor for use in electrochemical processing of a microelectronic workpiece is set forth and described herein. The apparatus comprises one or more walls defining a processing space therebetween for containing a processing fluid. The processing space includes at least a first fluid flow region and a second fluid flow region. A first electrode is disposed in the processing fluid of the first fluid flow region while a second electrode, comprising at least a portion of the microelectronic workpiece, is disposed in the processing fluid of the second fluid flow region. Fluid flow within the first fluid flow region is generally directed toward the first electrode and away from the second electrode while fluid flow within the second fluid flow region is generally directed toward the second electrode and away from the first electrode. Depending on the particular electrochemical process that is to be executed, the first electrode may constitute either an anode or a cathode in the electrochemical processing of the microelectronic workpiece. The foregoing reactor architecture is particularly useful in connection with electroplating of the microelectronic workpiece and, more particularly, in electroplating operations that employ a consumable anode, such as a phosphorized copper anode.